Problem Set 3 - R - Exercises

Denitsa Panova - Felix Gutmann - Thomas Vicente

June 15, 2016

Exercise 5.1 Barabasi

(a) & (b)

Figure 1 (a) shows the degree distribution for intermediate steps and figure 1 (b) the log log plot. We can observe convergence.

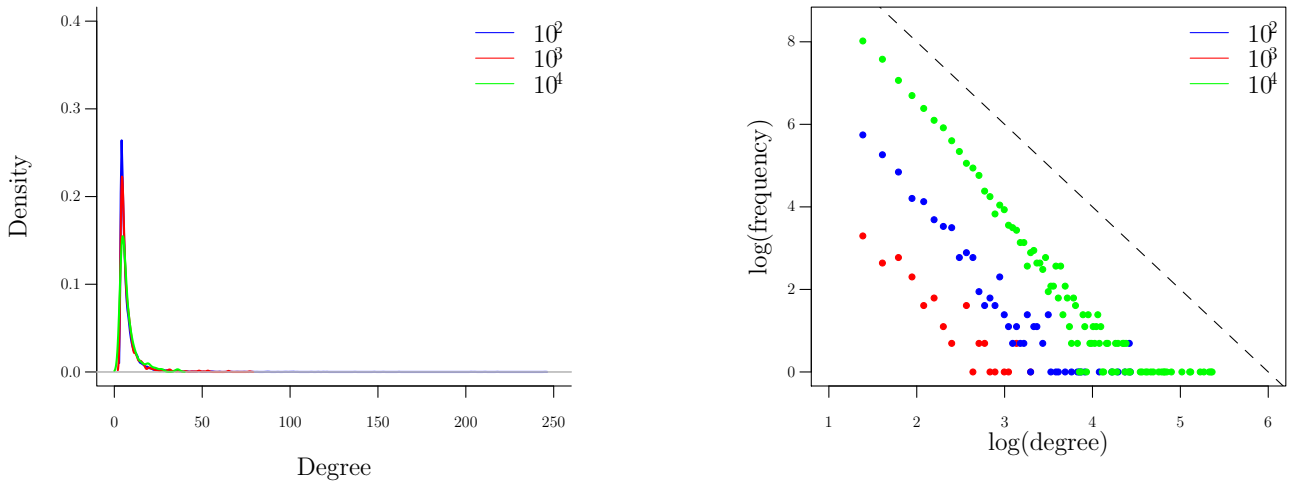
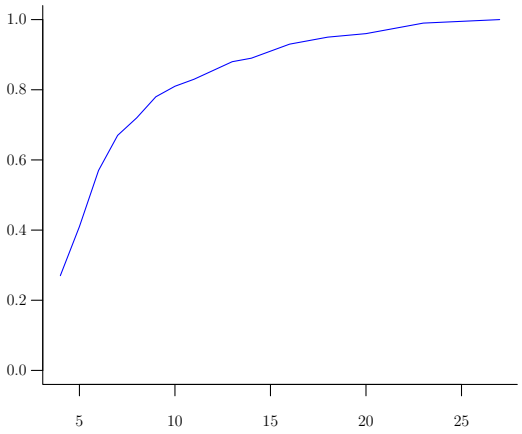
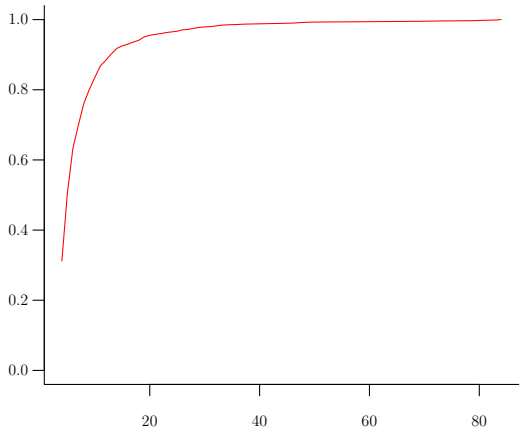


Figure 1: Degree Distribution

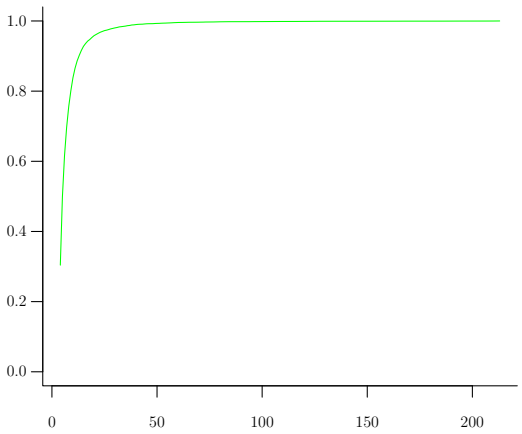
(c)



(a) 10^2



(b) 10^4



(c) 10^6

Figure 2: Cumulative distribution function

(d)

	Average Clustering Coefficient
10^2	0.133
10^4	0.03
10^6	0.004

Table 1: Average clustering coefficient for intermediate steps

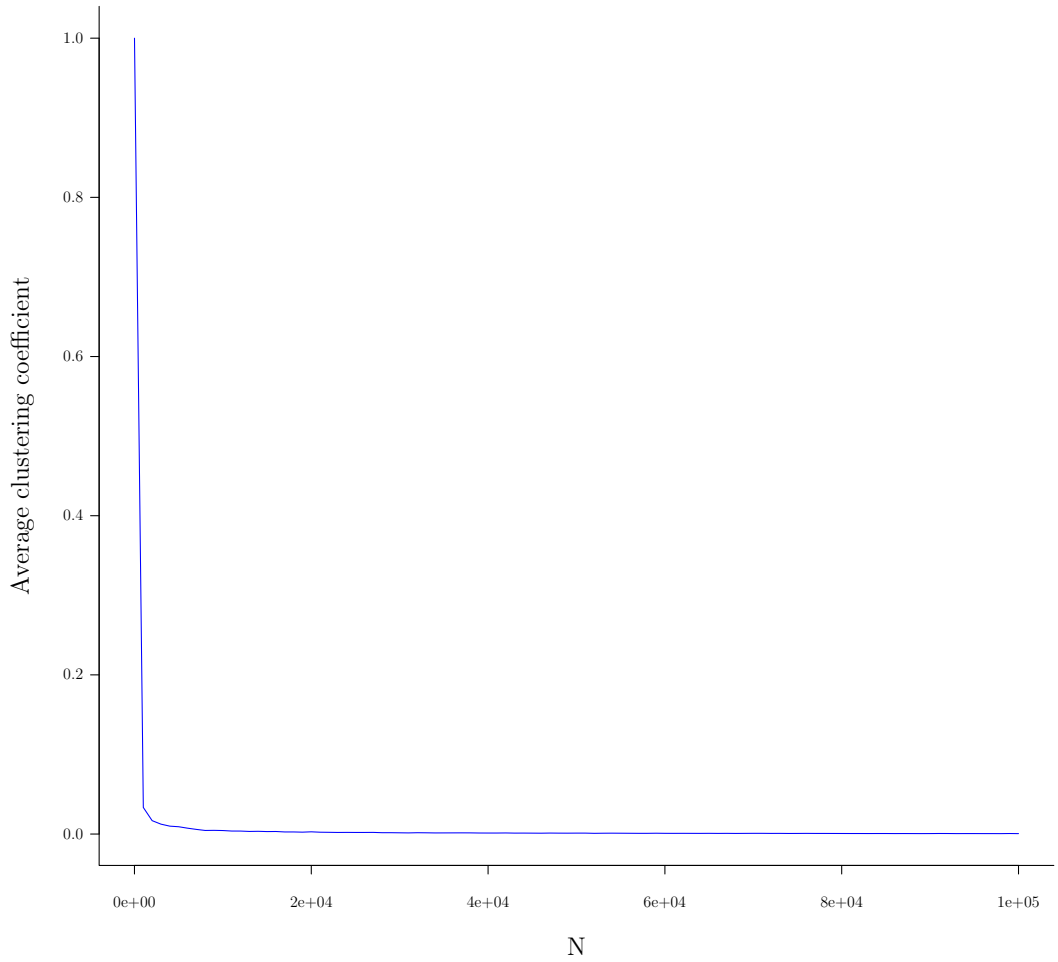


Figure 3: Average clustering coefficient as a function of N

(e)

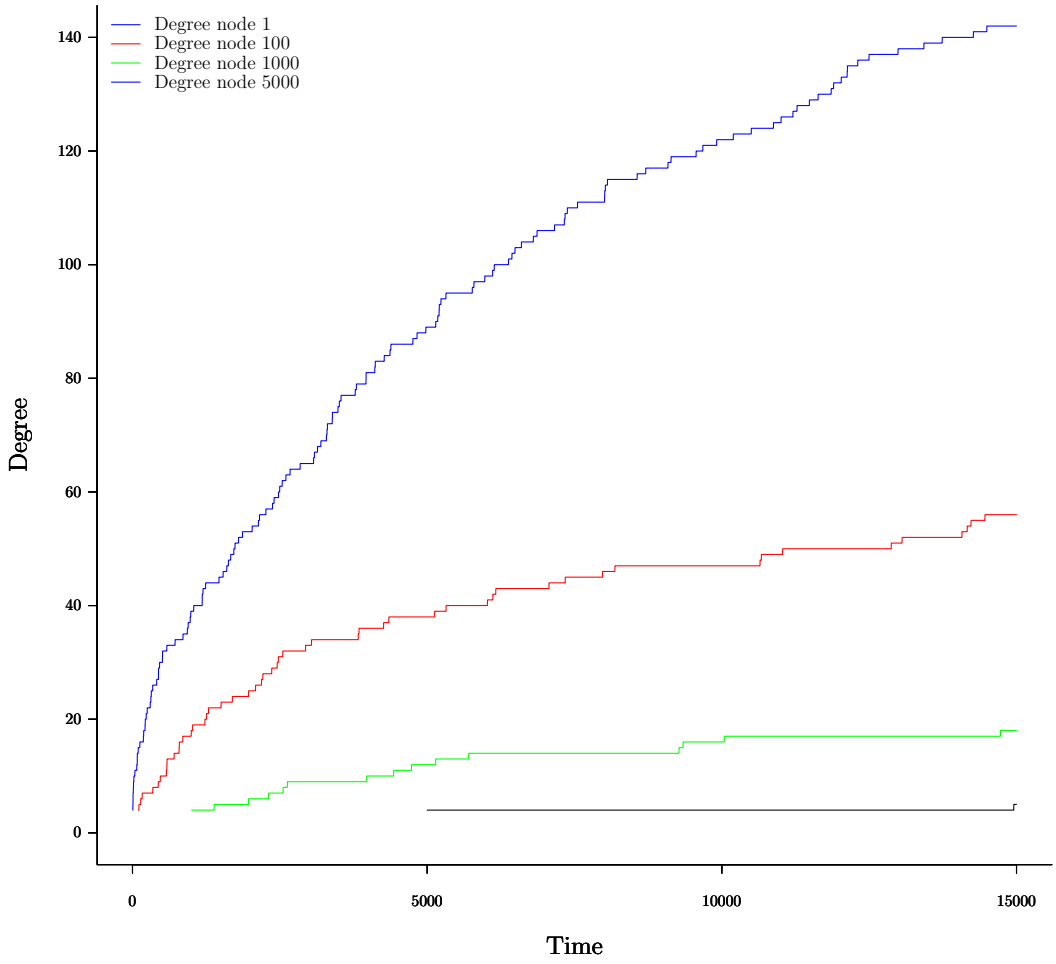
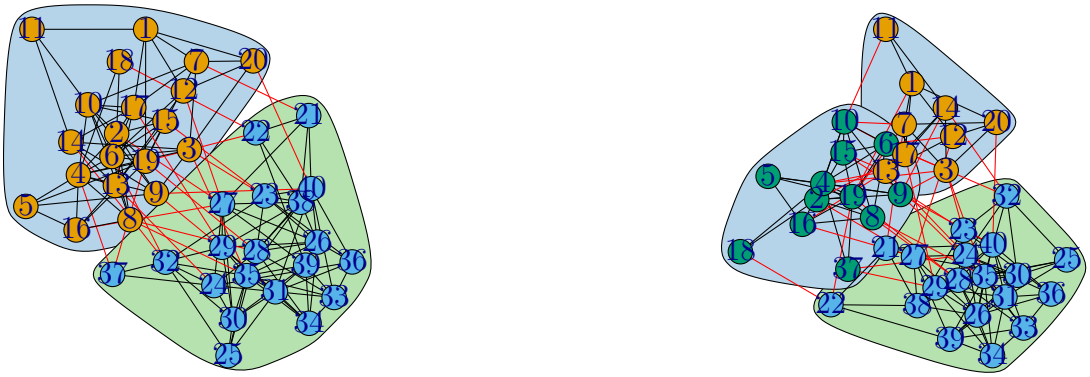


Figure 4: Degree dynamics

1 Exercise 2

The following figure **??**— shows the dendogram for the edge-betweenness. Modularity maximization is not a hierarchical procedure.



(a) Edge-betweenness (b) Modularity maximization

Figure 5: Communities with different algorithms

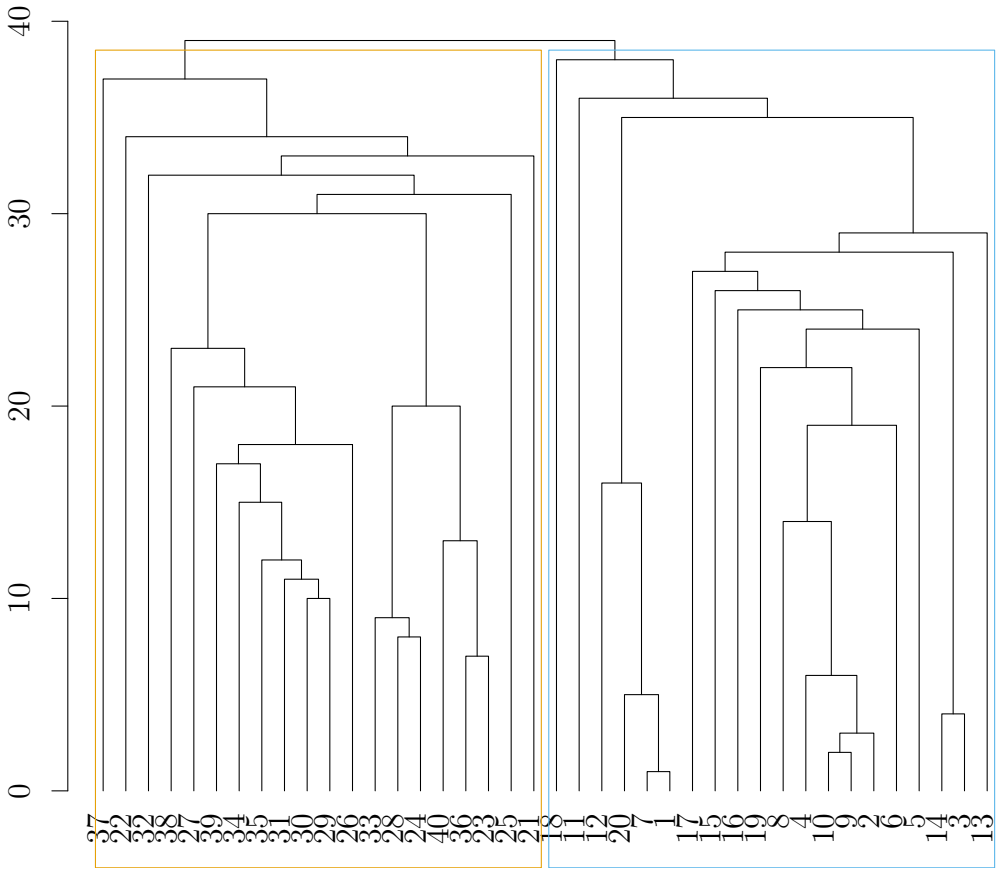


Figure 6: Dendogram